

## TAXONOMIC STUDY OF THE ISSID GENUS FLAVINA STÅL (HEMIPTERA, FULGOROIDEA, ISSIDAE)

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**Abstract** The Oriental planthopper genus *Flavina* Stål (Hemiptera, Fulgoroidea, Issidae) is reviewed. Two new species, *Flavina acuta* sp. nov. (Laos and Vietnam) and *Flavina quadrispina* sp. nov. (Thailand), are described and illustrated.

**Key words** Hemiptera, Issidae, *Flavina*, new species.

The planthopper genus *Flavina* Stål (Hemiptera: Fulgoroidea: Issidae) was erected by Stål in 1861 (type species: *F. granulata* Stål, 1861) (India, Mussooree). Distant (1906) described a second species of the genus, *F. striata* Distant, 1906, from Burma. Since then, no reports on this genus have been published.

In this paper, we describe two new species of the genus from Laos, Vietnam and Thailand. The specimens studied are from the Bernice P. Bishop Museum, Honolulu, Hawaii, USA (BPBM).

### *Flavina* Stål, 1861

*Flavina* Stål, 1861: 209; 1866: 206; Atkinson, 1886: 44; Distant, 1906: 356. Type species: *Flavina granulata* Stål, 1861.

Head including eyes distinctly narrower than pronotum; vertex subquadrate, lateral margins ridged; frons about one and a half times as long as broad, centrally carinate, but the carination obliterated before clypeus and with a subbasal transverse angulated ridge, between which and basal margin are two foveations; clypeus ecarinate; pronotum angularly produced behind vertex, the base truncate; mesonotum slightly longer than pronotum, less than twice as long as broad; legs long, posterior tibia with 3-5 spines; tegmina with costal margin slightly convex, radial vein bifurcate near base, the upper longitudinal vein bifurcate near apex, the second longitudinal vein bifurcate before middle, the two latter united before middle by a distinct transverse veinlet; longitudinal veins prominent, between them with a number of obscure veinlets, rendering the whole surface faintly reticulate.

### Key to species of *Flavina* Stål

1. Vertex with median carina only present at base ..... 2  
Vertex with complete median carina ..... 3
2. Pronotum with distinct median carina; mesonotum with median carina and lateral carinae ..... *F. quadrispina* **sp. nov.**  
Pronotum without median carina; mesonotum without median carina, with a longitudinal carina between middle line and lateral carinae ...  
..... *F. acuta* **sp. nov.**
3. Posterior tibia with 5 lateral spines ..... *F. granulata* **Stål**  
Posterior tibia with 3 lateral spines ..... *F. striata* **Distant**

### *Flavina granulata* Stål

*Flavina granulata* Stål, 1861: 212; Atkinson, 1886: 45; Distant, 1906: 357.

Pale dull yellowish testaceous, above with a slight dull virescent tint; anterior angles of vertex and basal angles of face piceous; frons with lateral margins minutely spotted with pale ochraceous; pronotum granulate, especially on lateral margins and posterior area; mesonotum with a central carination, on each side of which is an oblique, elongate, foveate, tubercular line; tegmina with basal halves of inner margins on each side of longitudinal suture closely and prominently spotted with black, other distinct black speckles or spots are found principally on outer and inner longitudinal veins; medial and apical annulations to anterior and middle femora, subbasal annulations and apical areas of anterior tibiae, and streaks to posterior femora fuscous brown (Distant, 1906).

Length incl. teg. 7-8 mm.

Distribution. India, Mussooree.

Remarks. This species was recorded from India. No specimens were available for the present study.

### *Flavina striata* Distant

*Flavina striata* Distant, 1906: 357.

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Dull ochraceous with a strong virescent tint; vertex with margins ridged and with a distinct central carination; frons with carinations very distinct, a piceous spot on each side of central carination immediately beneath fusion of the sublateral carinae, both the sublateral and central carinae have a central piceous line which renders them duplex in appearance; pronotum crossed by a number of longitudinal granulate striations; mesonotum with central carination distinct and with a brownish raised carinate line on each lateral area; tegmina with veins

prominent, for the most part fuscous, and here and there ornamented with small piceous spots; posterior tibia with 3 spines (Distant, 1906).

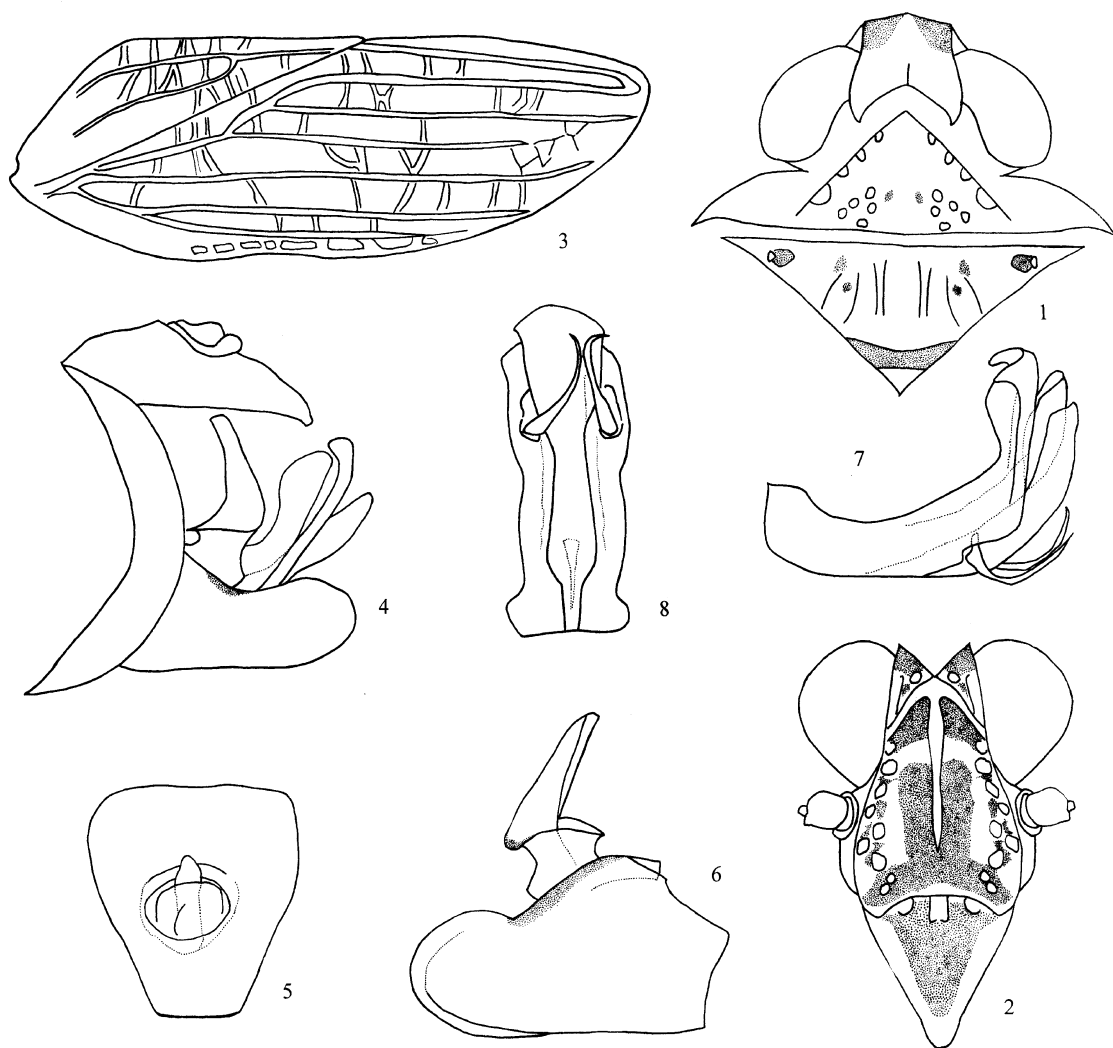
Length incl. teg. 5 mm.

Distribution. Burma, Tenasserim; Myitta.

Remarks. This species was recorded from Burma. No specimens were available for the present study.

*Flavina acuta* **sp. nov.** (Figs. 1-8)

Body length (incl. teg.): ♂ 6.0-6.8 mm; tegmina length: ♂ 5.0-5.7 mm.



Figs. 1-8. *Flavina acuta* sp. nov. ♂ 1. Head and thorax, dorsal view. 2. Frons and clypeus. 3. tegmen. 4. Male genitalia, lateral view. 5. Anal segment, dorsal view. 6. Genital style, lateral view. 7. Aedeagus, lateral view. 8. Aedeagus, ventral view.

General color yellowish brown. Vertex slightly broader than long, with black markings at anterolateral angles; anterior margin angularly produced, posterior margin anteriorly angularly produced; disc concave; with median carina only

present at base (Fig. 1). Frons dark brown, with a row of yellowish brown spots along lateral margins; with distinct median carina and an inverse V-shaped carina between eyes (Fig. 2). Clypeus dark brown in middle area, yellowish brown in lateral and basal

areas. Rostrum pale yellow. Antenna dark brown. Pronotum with anterior margin acutely produced between eyes; with distinct, fine protuberance on disc; with a dark pit beyond median line near posterior margin. Mesonotum dark brown, triangular; with a longitudinal carina between middle line and lateral carina. Tegmina with black markings at humeral angle, costal margin, apex and claval suture; with yellow brown or red brown veinlets among longitudinal veins (Fig. 3). Legs yellowish brown, femora and tibiae with blackish brown annulations, posterior tibia with 3 lateral spines. Spinal formula of hind leg:  $\delta$ -(8-9)-2.

Male genitalia. Anal segment in dorsal view broad apically, narrow at base; anal foramen in middle (Fig. 5). Genital styles subtrapeziform in lateral view, apex convex like a hook (Fig. 6). Aedeagus with lateral lobe bifurcate; with two posterodorsally directed processes in middle (Fig. 7).

Holotype  $\delta$ , Laos, Wientiane Prov, Ban Van Eue, 14-15 Apr. 1965 (J. L. Gressitt) (BPBM).

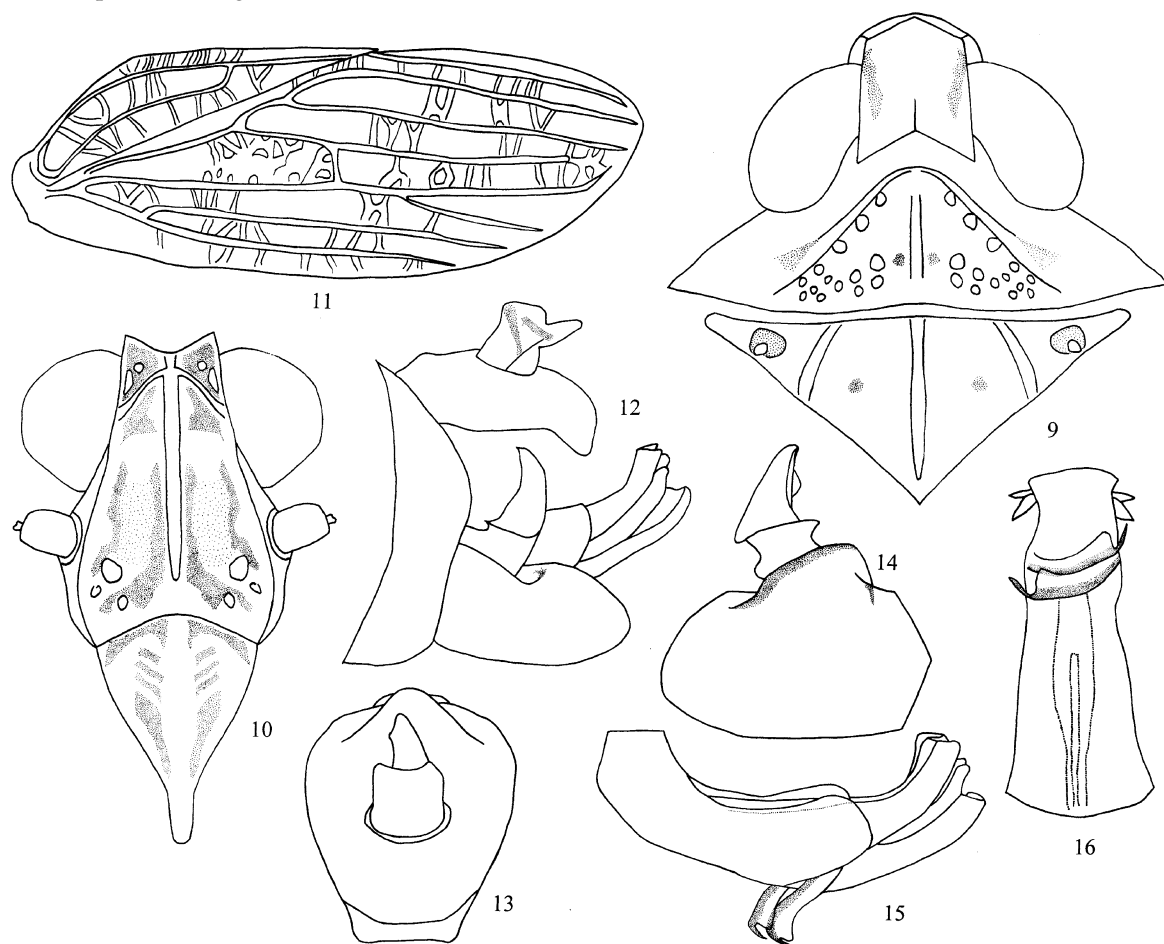
Paratypes. Vietnam: 1  $\delta$ , Dalat, 6 km, S., 1 400-1 500 m, 9 June-7 July 1961 (N. R. Spencer); 1  $\delta$ , Mt. Langbian, 1 500-2 000 m, 19 May-8 June 1961 (N. R. Spencer) (all in BPBM).

Remarks. This species is similar to *F. granulata* and *F. striata* but differs from the *F. granulata* in the posterior tibia with 3 lateral spines (posterior tibia with 5 lateral spines in *F. granulata*), and mesonotum without median carina (mesonotum with median carina in *F. granulata*), and from *F. striata* in vertex with median carina only present at base (vertex with complete median carina in *F. striata*), and mesonotum without median carina (mesonotum with median carina in *F. striata*).

Etymology. The species is named after its anterior margin of pronotum acutely produced between eyes.

*Flavina quadrispina* sp. nov. (Figs. 9-16)

Body length (incl. teg.):  $\delta$  7.0-7.2 mm,  $\eta$  7.5 mm; tegmina length:  $\delta$  5.8-6.0 mm,  $\eta$  6.2 mm.



Figs 9-16. *Flavina quadrispina* sp. nov.  $\delta$ 9. Head and thorax, dorsal view. 10. Frons and dypeus. 11. Tegmen. 12. Male genitalia, lateral view. 13. Anal segment, dorsal view. 14. Genital style, lateral view. 15. Aedeagus, lateral view. 16. Aedeagus, ventral view.

General color yellowish brown. Vertex longer than broad, with black stripes along lateral margins; anterior margin angularly produced, posterior margin anteriorly angularly produced; with median carina only present at base (Fig. 9). Frons dark brown, with yellowish brown spots along lateral margins near frontotopical suture; with distinct median carina and an inverse V-shaped carina between eyes (Fig. 10). Clypeus yellowish brown, with dark brown, transverse stripes beyond middle line. Rostrum yellowish brown. Antenna black brown. Pronotum dark brown, with anterior margin produced between eyes; with distinct, fine protuberance on disc; median carina distinct, with a dark pit beyond median carina near posterior margin. Mesonotum dark brown, triangular; with distinct median carina and lateral carinae; with darker spots on disc. Tegmina yellowish brown, with black markings at claval suture, humeral angle, costal margin and apex; with yellow brown or red brown veinlets among longitudinal veins (Fig. 11). Legs yellowish brown, femora and tibiae with black annulations, posterior tibia with 4 lateral spines. Spinal formula of hind leg: ♂ 8- (10-13) -2; ♀ 8- (11-13) -2.

Male genitalia. Anal segment in dorsal view broad apically, narrow at base; anal foramen in middle (Fig. 13). Genital styles subrectangular, apex convex like a hook (Fig. 14). Aedeagus with lateral lobe bifurcate, with two anteroventrally directed processes in middle (Fig. 15).

Female is darker than male.

## 黄瓢蜡蝉属分类研究 (半翅目, 蜡蝉总科, 瓢蜡蝉科)

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**摘要** 对东洋区黄瓢蜡蝉属 *Flavina* Stål (半翅目, 蜡蝉总科, 瓢蜡蝉科) 的种类进行了分类研究, 描述 2 新种, 即尖胸黄瓢蜡蝉 *Flavina acuta* sp. nov. (Laos, Vietnam) 和四刺黄

**关键词** 半翅目, 瓢蜡蝉科, 黄瓢蜡蝉属, 新种.

中图分类号 Q969.35

Holotype ♂, Thailand (SE), Chanthaburi, Prew, 45 m, 21 Apr. -1 May 1958 (T. C. Maa) (BPBM). Paratypes. Thailand: 1 ♂, Chiangmai Prov, Doi Suthep, 1 Apr. -5 Apr. 1958 (T. C. Maa); 1 ♂, Chiangmai, 1100-1500 m, 1966 (J. and J. H. Sedlacek, J. and M. Sedlacek); 1 ♀, Doi Suthep, 7 Apr. 1952 (D. and E. Thurman) (all in BPBM).

Remarks. This species is similar to *F. granulata* and *F. striata* but differs from the *F. granulata* in the posterior tibia with 4 lateral spines (posterior tibia with 5 lateral spines in *F. granulata*), and from *F. striata* in vertex with median carina only present at base (vertex with complete median carina in *F. striata*), and the posterior tibia with 4 lateral spines (posterior tibia with 3 lateral spines in *F. striata*).

Etymology. The species is named after its posterior tibia with four lateral spines.

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瓢蜡蝉 *Flavina quadrispina* sp. nov. (Thailand). 新种模式标本保存在 Bernice P. Bishop Museum, Honolulu, Hawaii, USA.